

From Surgeon General's Bookshelf to National Library of Medicine: A Brief History*

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ABSTRACT

The National Library of Medicine originated as a few books in the office of the army's surgeon general, Joseph Lovell, between 1818 and 1836. It became the nation's largest medical library after the Civil War under the direction of John Shaw Billings and began publishing the *Index-Catalogue of the Library of the Surgeon General's Office* and preparing the *Index Medicus*. After Billings retired in 1895, the library marked time as army medical officers were rotated through as directors until modernization began under Harold Wellington Jones during World War II. During the directorship of Frank B. Rogers (1949–1963), who introduced MEDLARS, guided the move to a new building in Bethesda, and revitalized other operations, the institution received statutory authority as the National Library of Medicine within the Public Health Service (1956). By 1965, which was marked by the passage of the Medical Library Assistance Act, the library had again regained a position of world leadership.

IN 1818, following the second war with Britain, the United States army medical department was reorganized and Joseph Lovell became the surgeon general (Figure 1). Along with other supplies, he or his clerk bought books from time to time as part of the equipment deemed necessary for the surgeons under his direction. Some of these books, along with others Lovell no doubt purchased himself or received as gifts, ended up in a bookcase in his office; in some, still to be seen in the History of Medicine Division at the National Library of Medicine, he wrote his name and rank (Figure 2). When Lovell died in 1836 his books stayed behind to form the nucleus of the surgeon general's office library. A century later, E. E. Hume, perhaps because the budget request of 1836 was apparently the first specifically to request "medical books for [the] office," arbitrarily picked that year as the birth-

date of what has become the National Library of Medicine; that is the date we celebrate this year.

Lovell's successor, Surgeon General Thomas Lawson, continued and expanded the office collection. In 1840 he decided it had become large enough to require a catalog, a small handwritten notebook listing some 134 titles and clearly denominating the collection as the "Library of the Surgeon General's Office." The library continued to grow slowly; apparently there was no thought that it might serve a larger public than the headquarters staff. During the Civil War the army and its medical department expanded rapidly. In 1862 the new surgeon general, William A. Hammond, established a medical museum for the collection of medical reports, statistics, and specimens so that a medical history of the war might be compiled. More books were needed. In 1864 the first printed catalog listed some 2,100 volumes.

THE BILLINGS ERA

On December 31, 1864, Surgeon General Joseph K. Barnes transferred the capable young surgeon John Shaw Billings (Figure 3) from the Army of the Potomac to his own office. Just when and how Billings came to be in charge of the growing collection is not entirely clear, but by mid-1867 the staff medical officers had agreed that all book procurement should be placed in his hands. Before long, Billings was writing agents that he wished "in time to make the Library of this office as complete as possible."

Years later Billings said that he was inspired by the difficulty he experienced in finding the literature he wanted to prepare his thesis for the M.D. degree. Whatever influence this experience—which others shared—may have had, he undoubtedly had a passion for books. Despite limited funds and the necessity of serving first the requirements of his colleagues' contemporary medical research at the museum, Billings began acquiring old as well as new books for the growing library. By June 1868 a new catalog listed almost 7,000 volumes, includ-

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National Library of Medicine

FIG. 1.—Joseph Lovell, 1788–1836.

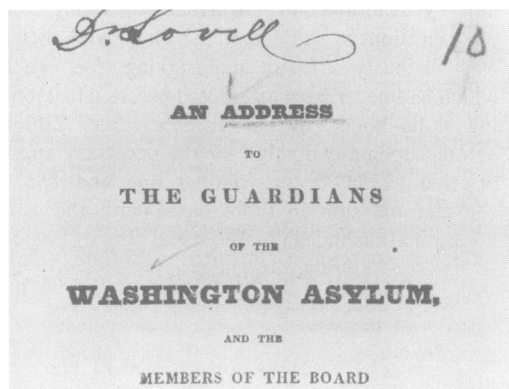
ing 231 titles from the 15th through 18th centuries. By 1871 Billings and Barnes had agreed that the collection should be developed into a “National Medical Library.”

Billings went after this goal with a remarkable determination, persistence, and skill. He enlisted the cooperation of physicians throughout the country, notably his fellow officers, in acquiring pamphlets for the library and back issues of elusive journals. Surgeon Francis L. Town of Fort Preble, Maine, for example, faced with one Dr. Gilman of Portland, “who fully lives up to the reverse principle of never doing today what can possibly be deferred until tomorrow, or next week preferably,” was able to secure back numbers of the *Maine Medical and Surgical Reporter* only after enlisting Mrs. Gilman’s willing aid in cleaning out the attic. So persuasive was Billings himself when he saw some books he wanted that Oliver Wendell Holmes regarded him “as a positive danger to the owner of a library, if he is ever let loose in it alone.” He proved equally effective in persuading influential physicians to mount a lobbying campaign when the Panic of 1873 threatened a cut in appropriations.

By 1875 the library contained almost 75% of all medical periodicals published; it was already twice the size of the next largest medical library in the country, at the College of Physicians of Philadel-

phia. But as every librarian—and every library user—knows, a collection of books must also be organized and cataloged in some fashion so that users can determine what is there and needed materials can be retrieved. At first, books were arranged by subjects and then alphabetically by author; journals were shelved alphabetically by title. Early in the 1870s Billings started a card file, primarily to provide copy for successive printed catalogs but also to supplement them between publications.

In preparing catalogs, Billings had numerous examples available from selected American and many European libraries. Generally, they offered some form of author and subject approach to monographs and a list of journal titles, but no analysis of journal contents by article. A number of valuable bibliographic tools existed for those who wished to search the journal literature, notably the European abstract and indexing periodicals, but there was no comprehensive subject guide to the vast medical periodical literature that had accumulated since the publications of J. D. Reuss and W. G. Ploucquet early in the century. The first library catalogs issued under Billings’ guidance were in the traditional mold, but evidently he was already formulating a more ambitious goal. In 1874 he began the subject indexing, selectively, of journals in the library. Again, he called on his brother officers for assistance, and many found it a welcome relief from the tedium of an army post on the frontier. Late the next year he arranged the cards from “Aabec” to “Air” and sent them off to the Government Printing Office for a *Specimen Fasciculus of a Catalogue of the National Medical Library*.



National Library of Medicine

FIG. 2.—Joseph Lovell’s signature appears in some of the first volumes in the NLM collection.



National Library of Medicine

FIG. 3.—John Shaw Billings (1838–1913), in his library at home, 84 Gay Street.

One purpose of the *Specimen Fasciculus* was to experiment with a variety of typefaces and formats before a final design was chosen for the intended catalog. A second and more vital purpose was to demonstrate what Billings was planning and to enlist support for its publication. The *Specimen Fasciculus* set forth by example a plan for a catalog that would list books by author and subject, journals by title, and journal articles including complete citations by subject, all in a single alphabet. It was obviously a major undertaking, the like of which had never been attempted before. His lobbying skills honed by earlier experience, Billings entered upon a campaign for the necessary appropriation (\$25,000 for volumes one and two, a considerable sum in those days) with the same determination and skill that he had already demonstrated in building the collection. Copies of the *Specimen Fasciculus* went out to influential physicians with requests for their support in applying pressure where it would do the most good. In words that sound—given a few changes in terminology—equally relevant today, Billings wrote, “The question for Congress to decide is as to whether the result would be worth the expenditure. . . . What is

the value of such an index to the people of the United States as compared with an expedition to the North Pole, five miles of subsidized railroad, one company of cavalry, or a small post-office building?”

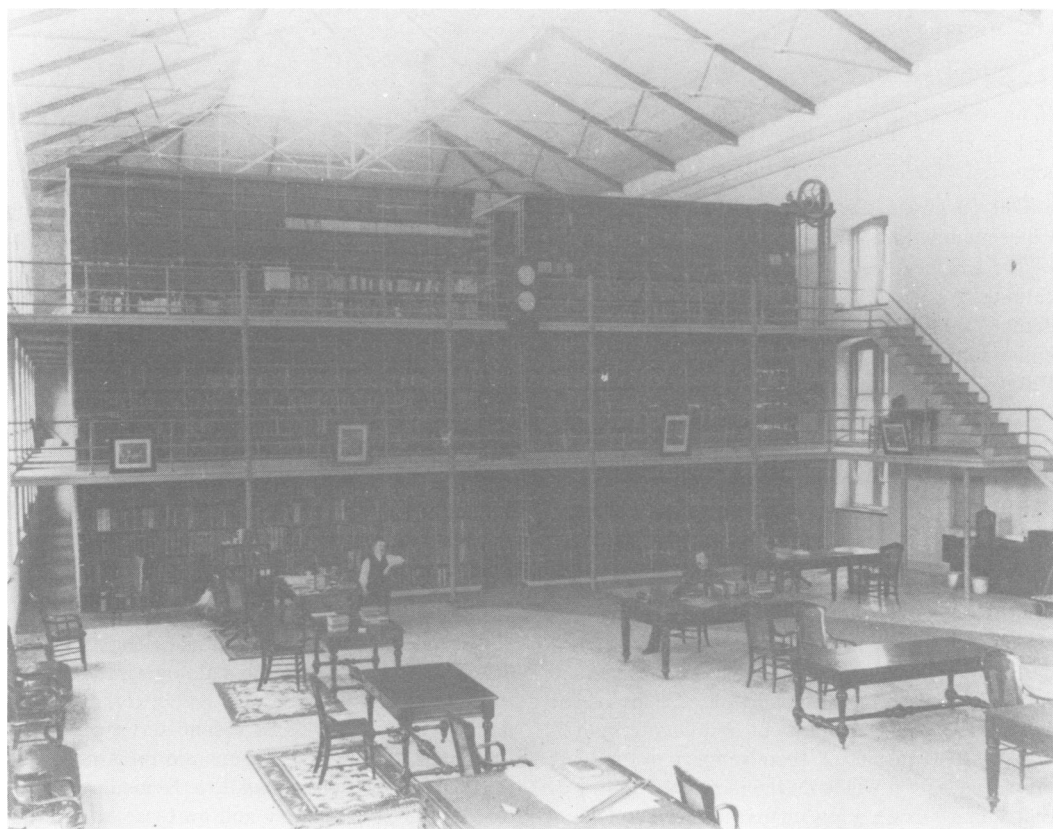
Congress was persuaded, the appropriation was passed, and volume one of the *Index-Catalogue of the Library of the Surgeon General's Office, United States Army* appeared in 1880 with authors and subjects from A to Berlinski, essentially as outlined in the *Specimen Fasciculus*. Originally estimated to fill eight volumes, the *Index-Catalogue* eventually required sixteen for the first series, completed in 1895. Although it was a catalog of a particular library rather than a bibliography of medicine, so great was the collection and so extensive the indexing and cataloging that it far transcended its function as a guide to that collection. With the companion second series published from 1896 to 1916, it became and remains by far the most comprehensive guide to the medical literature of the 19th century and an essential one for that of earlier periods. As William Osler later wrote, “No undertaking in bibliography of the same magnitude dealing with a special subject had

ever been issued, and its extraordinary value was at once appreciated all over the world." Among those interested in the older medical literature, Billings' monumental achievement is appreciated still.

The *Index-Catalogue*, however, was not designed to keep up with current output in a timely fashion. A book or article on anthrax, for example, that appeared too late or was somehow missed in the first volume in 1880 could not appear in the index until the corresponding segment of the alphabet was published in volume one of the second series in 1896. To some degree, this gap was filled by existing European abstract journals. The best, however, were German; the only ones in English were woefully inadequate. Billings, therefore, in association with the bibliographic publisher F. Leopoldt of New York, instituted in 1879 the *Index Medicus*, a monthly classified subject guide to books and journal articles with an author index. It quickly established itself as the most timely and comprehensive guide to the current medical litera-

ture. Though prepared after hours at the library as an offshoot of the *Index-Catalogue*, it was a commercial (money-losing) publication, not supported by government funds. After struggling valiantly for a number of years, it ceased publication in 1899.

In 1867, when the library and museum were beginning to expand, they had been moved from the surgeon general's office to Ford's Theater, which soon became increasingly crowded and hazardous. It was threatened by fire from adjoining wooden structures and the interior was dangerously overloaded. Backed by the surgeon general, Billings went after a new building, once the *Index-Catalogue* was assured, with his usual determination and skill. The necessary legislation passed in 1885, and the new building opened in 1887 (Figure 4). It came none too soon: in 1893 the interior of Ford's Theater collapsed. Meanwhile the institution had become in all but name what Barnes and Billings had projected, a national library of medicine. Its collection of books, pamphlets, theses, and journals



National Library of Medicine

FIG. 4.—The new Library of the Surgeon General's Office opened in 1887. Billings is shown seated in the reading room.

was by far the largest in the United States. Civilian users had outnumbered military users since the 1870s, books and journals were being sent out on interlibrary loan across the country, and reference and reader services were growing. Billings' advice was widely sought, and the library's bibliographic publications were heralded throughout the Western world.

When Billings retired from the army and departed the library in 1895, he left behind not only a thriving institution but also two remarkable colleagues: Robert Fletcher, who had come to the library as Billings' chief aide in 1876, and Fielding H. Garrison, who had started there as a clerk in 1891. Fletcher continued as principal assistant librarian and editor of the *Index-Catalogue* and *Index Medicus* until 1912, when Garrison succeeded him; Garrison carried on, except for a brief hiatus in the early 1920s, until 1930. Both were industrious, learned, and able; Garrison is well known also for *An Introduction to the History of Medicine* (1st ed., 1913; 4th ed., 1929). Between them, they kept the library and its bibliographic publications going.

THE THIRTIES AND FORTIES

The directorship, however, had become just another army post. It was filled for a few years by a succession of medical officers, some quite distinguished, but none with any experience or training in running a library. By the time they could learn, army policy required that they be rotated out. In comparison with other federal libraries, staff pay and grades remained low as the library became a dumping ground for superannuated clerks from the surgeon general's office. Vigorous and knowledgeable policy direction was lacking. Almost by default, the library continued churning out the *Index-Catalogue*, the fourth series starting in 1936. *Index Medicus* was revived in 1903 with support from the Carnegie Institution of Washington (Billings was on the board) and continued until 1927 when it merged into the American Medical Association's similar publication as the *Quarterly Cumulative Index Medicus*, published by the AMA. By the 1930s, after Garrison's departure, the library's acquisitions were falling behind, its building was deteriorating and overcrowded, its staff (with a few saving exceptions) inadequate. Except when threatened by a Library of Congress takeover, it was treated by its parent department like the proverbial stepchild.

In 1936 still another director ignorant of librarianship and approaching the end of his active

career was chosen, Harold Wellington Jones. But Jones was conscientious; by the time he was due for retirement in 1941 he had instituted some useful if minor improvements. Then came World War II. Jones was kept on, which gave him an opportunity to apply some of his newly won experience at a time when demand for the library's services from the army medical department expanded rapidly.

Part of this demand was stimulated by a new microfilm service started in 1937 under prodding by Atherton Seidell of the American Documentation Institute. In 1940, with Jones' backing, Seidell formed the Friends of the Army Medical Library to promote the service and publish a weekly pamphlet-sized *Current List of Medical Literature*, put together, like the *Index Medicus* of 1879, by library employees on their own time from cards prepared for the *Index-Catalogue*. The *Current List* was cheap, simple, quick, and increasingly popular. The microfilm service expanded with it, especially after 1943, when the library began sending out free microfilm in lieu of interlibrary loans. There was no other way the wartime demands, especially from military installations overseas, could have been met.

Jones also, perhaps more boldly, arranged in 1943 for a survey of the library by a group of six librarians, including Janet Doe, Thomas Fleming, and Mary Louise Marshall, under the aegis of the American Library Association. Their report, as Jones undoubtedly expected, severely criticized the library—its organization, its building, its failure to keep up with acquisitions, its deplorable cataloging and classification system. Jones now had the ammunition he needed to start the process of modernization.

THE POST-WAR YEARS

Jones retired at the end of the war in 1945. Soon after, the surgeon general was persuaded to appoint a young and vigorous medical officer, Joseph McNinch, as director in December 1946. McNinch continued administrative reform and persuaded the surgeon general that the directorship should be a career post instead of a routine four-year rotation and that the director should be a medical officer trained in librarianship. Dr. Frank B. Rogers was selected, sent to library school, and then appointed director in 1949. There was opposition, McNinch later recalled, on the grounds that Rogers was too young, "but [I] was able to point out that the famous and eminent John Shaw Billings was in his 30s when first assigned to the Library. For some reason, most people seemed to think that he had

always been the age at which time his portrait for the Library was painted."

The modernization of the library, tentatively started by Jones and continued by McNinch, was carried on by Rogers. Acquisition of material for the collection was revitalized and great efforts were made to fill gaps after the war. A scope and coverage policy was established to guide and rationalize the growth of the collection. Modern classification, cataloging, and subject heading systems started under Jones were pushed forward and eventually published for the use and benefit of other medical libraries. The *Current List of Medical Literature* was revamped under the editorship of Seymour Taine as a monthly, with monthly and cumulative author and subject indexes and a specific list of journals to be covered. The obsolete *Index-Catalogue*, now in the middle of the fourth series and increasingly behind, was finally stopped as of 1950, although not without a bitter struggle. It was replaced by the revised *Current List* and a new Army Medical Library *Catalog*.

Between 1942 and 1956 the staff grew by more than six times and acquisitions by more than ten. Space and housing problems were increasingly acute. Many books, chiefly older ones, were shipped to Cleveland, where a special historical division created during the war was destined to remain until 1962. Other books were shifted from one temporary building to another. Such an elementary improvement as an elevator (so books need not be carried upstairs by hand) took three years. Lighting was inadequate. The roof leaked and drains backed up. Though not as old as the wonderful one-horse shay, the building seemed likely to share its fate.

Meanwhile, repeated commissions had debated the future of the library—whether it should remain in the military or be transferred to another department, and when, where, or even whether it should get a new home. Finally in 1956 the National Library of Medicine Act, sponsored by Senators Lister Hill and John F. Kennedy, established the institution in the Public Health Service with its own Board of Regents and full statutory authority as a national library. This reorganization placed the library in the federal government's primary health agency, where it logically belonged: it had long been essentially a civil institution serving all of the nation's health professions rather than just (or even primarily) the military. Like other government institutions, it would still have to compete for funds, but now for funds devoted to the public health rather than to soldiers, sailors, guns, and

missiles. Transfer to the Public Health Service also brought more active interest of a number of powerful Congressional figures, notably Senator Hill, whose influence played a significant role in the appropriation after years of talk and plans of funds for the construction of the new building envisioned in the 1956 act. The now-familiar structure opened in Bethesda in 1962. The Army Medical Museum reclaimed its old home on the Mall for a few years, but in 1968 it was demolished to make way for the Hirshhorn Museum.

Meanwhile, Rogers and Taine were also exploring new methods of producing the revamped *Current List of Medical Literature*. During the latter 1950s they developed a "mechanized" system using data processing equipment, punch cards, and an automatic step camera to replace the old system of shingling slips by hand. Concurrently, Rogers was negotiating with the AMA, which was still publishing the *Quarterly Cumulative Index Medicus* (though it was no longer quarterly or cumulative), to end this duplicative effort. In 1959 they agreed to join forces: NLM would publish a monthly with the revived title *Index Medicus* and the AMA an annual cumulation using photographic printing masters supplied by NLM. The first index using the mechanized system was the first issue of the new *Index Medicus*, published in 1960. In 1965, NLM also took over publication of the annual cumulation.

THE MODERN ERA

The mechanized system itself was to last but a few years. In 1960 Rogers began drawing up specifications for a computerized system. It would cut the time to sort and arrange citations and produce photographic printing masters for the monthly *Index Medicus* from twenty-two days to five, permit an increase in the number of journals indexed, produce other recurring bibliographies on selected topics in a similar format, and prepare specialized one-time bibliographies on demand in answer to specific requests. All this was to be ready by the fall of 1963. Rogers resigned in August 1963, to be succeeded by Dr. Martin M. Cummings. All was in readiness for the January 1964 *Index Medicus* except for GRACE, the photocomposition machine—technically perhaps the most advanced and experimental part of the system—which became operative in time for the August issue. In March 1964 NLM also inaugurated the planned "demand search" service, providing individual bibliographies through specialized searches, primarily for teachers and researchers. A few

months later *Cerebrovascular Bibliography* appeared, the first of the planned recurring bibliographies. The Medical Literature Analysis and Retrieval System—or MEDLARS, as it was commonly called—was off to a highly successful start as the largest publicly available information storage and retrieval system then in existence.

Soon, indeed, it was apparent that the burgeoning requests would quickly overwhelm the system's capacity, especially for demand searches, unless some relief was found. This led to a 1964 program to decentralize MEDLARS by providing database tapes to other libraries. Meanwhile the growth of medical research and educational facilities throughout the nation was laying heavier burdens on medical libraries everywhere. Beginning about 1960, NLM sought means to improve libraries and the training of librarians. After much study and planning, the Medical Library Assistance Act, actively supported by Senator Hill, received presidential approval in 1965. It authorized funds for construction, improvement of facilities and resources, training, and research. It made possible the establishment of the regional medical library system, barely in time to begin handling the huge increase in demand for bibliographic services, books, and journal articles fostered by the growth of medical research and by MEDLARS itself. The principle demonstrated earlier by Billings that adequate bibliographic tools by their very existence

would increase demand for the literature was proved once again.

Under the direction of Jones, McNinch, and especially Rogers, the National Library of Medicine had been brought out of the doldrums, where it had lain since the departure of Billings, to a renewed position of world leadership. It was ready to face the challenges of the final third of the 20th century.

BIBLIOGRAPHICAL NOTE

Miles WD, A history of the National Library of Medicine, the nation's treasury of medical knowledge, Bethesda: NLM, 1982 (NIH publication no. 82-1904) covers the subject thoroughly and is the principal source used for this article, making detailed citation unnecessary. It has been supplemented by Blake JB, ed., Centenary of Index Medicus 1879-1979, Bethesda: NLM, 1980, and Blake JB, The physician as bibliographer, Bull NY Acad Med 1965 Apr;2d ser. 61:240-9. For a full appreciation of Billings' career, readers should also consult Garrison FH, John Shaw Billings, a memoir, New York: Putnam's, 1915, and Rogers FB, ed., Selected papers of John Shaw Billings, Baltimore: Medical Library Association, 1965 (NLM publication no. 2). Additional citations may be found in Wasserman MJ, Historical chronology and selected bibliography relating to the National Library of Medicine, Bull Med Libr Assoc 1972 Oct;60:551-8, and subsequent issues of Bibliography of the history of medicine, s.v. Libraries.

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